

DTIC FILE COPY

AD

2

AD-A205 778

## COST MEMORANDUM

89-07

TROOP SUPPORT INFLATION PROGRAM  
(A COMPUTER PROGRAM GENERATING HISTORICAL  
INFLATION FACTORS FOR TROOP SUPPORT ITEMS)

DTIC  
ELECTE  
MAR 10 1989  
S D

MARY S. ORTWERTH  
JANUARY 1989

U.S. ARMY TROOP SUPPORT  
COMMAND (TROSCOM)  
DIRECTORATE FOR  
RESOURCE MANAGEMENT  
COST ANALYSIS DIVISION  
4300 GOODFELLOW BLVD.  
ST. LOUIS, MISSOURI 63120



DISTRIBUTION STATEMENT A

Approved for public release  
Distribution Unlimited

89 3 08 218

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER TROSCOM Cost Memorandum 89-07	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Troop Support Inflation Program (A Computer Program Generating Historical Inflation Factors for Troop Support Items)		5. TYPE OF REPORT & PERIOD COVERED Jan 89 - Jan 90
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Mary S. Ortwerth		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS USATROSCOM, Directorate for Resource Management Cost Analysis Division ATTN: AMSTR-CCP 4300 Goodfellow Boulevard St. Louis, MO 63120-1798		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE January 1989
		13. NUMBER OF PAGES
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for Public Release; Distribution is unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Historical Inflation Factors Troop Support Items PPI Codes		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The Historical Inflation indices in this report have been developed for use in adjusting historical costs for US Army Troop Support Items. These Troop Support items are categorized by the Producer Price Index Codes. The indices are broken out by month for each year and expressed as a fiscal year average and as a fiscal year factor.		

# TROOP SUPPORT INFLATION PROGRAM

89-07

produced by:  
Program/Validation Branch  
Cost Analysis Division  
Directorate For Resource Management  
U.S. Army Troop Support Command  
St. Louis, Missouri 63120

data provided by:  
Kansas City Regional Office  
Bureau of Labor Statistics  
U.S. Department of Labor  
911 Walnut Street  
Kansas City, Missouri 64106

VALIDATION  
PROGRAM/VALIDATION BRANCH  
COST ANALYSIS DIVISION  
DIRECTORATE FOR RESOURCE MANAGEMENT  
U.S. ARMY TROOP SUPPORT COMMAND  
ST. LOUIS, MISSOURI 63120  
3015  
VALIDATION  
DATE 12 Jun 89 EXPIRE 12 Jan 90  
ANALYST TERWILLIGER PHONE NO 693-3133  
NAME OF UNIT RE  
REMARKS BY VI

APPROVED BY:

Accession For	
NTIS CRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and for Special
A-1	

*William E. Becher*  
WILLIAM E. BECHER  
CHIEF, PROGRAM/VALIDATION BRANCH  
DIRECTORATE FOR RESOURCE MANAGEMENT

*Ralph Crawford*  
RALPH CRAWFORD  
CHIEF, COST ANALYSIS DIVISION  
DIRECTORATE FOR RESOURCE MANAGEMENT



#### ACKNOWLEDGEMENTS

For their roles in the preparation of this report, credit is due the following:

Mr. John Zamarra, U.S. Naval Sea Systems, for supplying the research materials and inflation data used to update U.S. Army watercraft costs,

The Kansas City Regional Office, Bureau of Labor Statistics, U.S. Department of Labor, for special assistance with wage and price data,

and Mr. Warren Gille and Ms. Cynthia Phillips, TROSCOM Cost Analysis Division, for their preparation of past reports, from which the verbage in this report is taken.

TROOP SUPPORT INFLATION PROGRAM  
TABLE OF CONTENTS

	<u>PAGE</u>
I. Statement of Applicability	1
II. An Overview of Inflation Indices for Troop Support Work	2
A. Introduction	3
B. Source of Data and Explanations of Codes	3
C. Producer Price Indices used in Troop Support Work	5
D. Output Generated By the Computer Program	5
E. Additional Publications Concerning Inflation	6
III. Computer Generated Inflation Indices	7
A. List of PPI Codes and Associated TROSCOM Items	8
B. Producer Price Indices and Factors	
1. Rubber and Plastic Products - PPI Code 07	9
2. Heating Equipment - PPI Code 10-6	10
3. Fabricated Structural Metal Products - PPI Code 10-7	11
4. Machinery and Equipment - PPI Code 11	12
5. Construction Machinery and Equipment - PPI Code 11-2	13
6. Watercraft/Small Ships Naval Sea Systems	14
7. Special Industry Machinery and Equipment - PPI Code 11-6	15
8. Electrical Machinery and Equipment - PPI Code 11-7	16
9. Railroad Equipment - PPI Code 14-4	17
10. Industrial Commodities - PPI Codes 03-15	18

## I. APPLICABILITY.

The inflation indices and factors in this report have been developed for use in the adjustment of historical costs for U.S. Army Troop Support Command managed items, and are covered under the Other Procurement, Army (OPA) appropriation. Due to the multiplicity of troop support items, the justification for the selection and use of any index not covered by the schedule listed in Section II of this document is the user's responsibility.

SECTION II.

An overview of Inflation Indices for Troop Support Work

A. Introduction.

Historical indices are a convenient device for translating the price of an item procured in the past to what the "replacement price" for the item would be today. Several questions, however, should be asked before using an index to update past procurement prices:

1. Is the item for which an updated price is to be calculated obsolete due to changes in technology? Theoretically, prices for WWII vintage equipment can be "updated." However, it should be obvious that this is not a reasonable procedure. To calculate the replacement price for obsolete equipment, a special cost study rather than the application of a numerical index, is required.

2. Is the item under consideration made of the same materials and by the same manufacturing process as when last procured? If the manufacturer has substituted nylon parts for metal parts without loss of performance, or now assembles or packages the item by machine and has significantly lowered his costs, the replacement price for the item could be lower than the index would indicate.

3. Are the conditions of the replacement procurement, if undertaken, identical to past procurement(s)? For instance, are the quantities to be purchased in the old and new procurements similar?

4. Is the index appropriate for use with the item at hand? An index is developed by tracking price changes for a group of items over time. Whether or not a specific index is used for an item depends on whether the item belongs to that group being indexed, and whether it receives adequate representation on the group. For example, aluminum metal items are not accurately tracked using Code 10, Metals and Metal Products, which experienced inflation of 10.0% for FY 80 - FY 85. Rather Code 10-2, Nonferrous Metals, is more appropriate because it contains numerous aluminum shapes, forgings, and semi-finished items. Aluminum items have experienced less rapid cost growth than the general group of metal items. Nonferrous Metals experienced a 13.9% decrease for FY 80 - FY 85 as compared to the 10.0% increase for Metals and Metal Products for the same period.

B. Source of Data and Explanation of Codes:

The data used to produce the fiscal year historical inflation indices is supplied by the Kansas City Regional Office, Bureau of Labor Statistics, U.S. Department of Labor. The term PPI code is merely an abbreviation for Producer Price Index code, formerly called the Wholesale Price Index code. The name was changed because raw materials and semi-finished goods are included in the index, not just finished goods at the wholesale level. Producer Price Index codes are two to eight digits in length. The more digits a code has, the more narrowly defined the index is. For example:



PPI Code 11 is Machinery and Equipment

----a subcategory of Code 11 is:

PPI Code 11-7, Electrical Machinery and Equipment

----a further refinement is:

PPI Code 11-73 Motors, Generators, and Motor Generator Sets

----a subcategory of this is:

PPI Code 11-7303, Fractional Horsepower Motors and Generators

----and an final subcategory of this subcategory is:

PPI Code 11-730301, Automobile Accessory Motors

----which is a well defined, item specific category..

Because a single PPI code may be used to track a number of similar items, most codes used for troop support work are two, three, or at most four digit codes. A list of the general two digit codes in the Producer Price Index is presented below. The fifteen PPI codes cover the majority of the items produced and consumed by the U.S. economy.

PRODUCER PRICE INDEX CODES AT THE AGGREGATE LEVEL.

<u>PPI CODE</u>	<u>TITLE</u>
01	Farm Products
02	Processed Foods and Feeds
03	Textile Products and Apparel
04	Hides, Skins, Leather, and Related Products
05	Fuels and Related Products and Power
06	Chemicals and Allied Products
07	Rubber and Plastic Products
08	Lumber and Wood Products
09	Pulp, Paper, and Allied Products
10	Metals and Metal Products
11	Machinery and Equipment
12	Furniture and Household Durables
13	Nonmetallic Mineral Products
14	Transportaion Equipment
15	Miscellaneous Products

A list of Producer Price Index codes and the troop support items with which they have been traditionally associated at TROSCOM is included in Section III of this document.

C. Producer Price Indices used in Troop Support Work.

From a review of documents which span the past 15 years, it was determined that as many as 103 Producer Price Index codes were considered for and/or used in troop support work. A number of these indices were used for Economic Price Adjustment (EPA) contracts, in which contractual obligations are adjusted according to the movement of specialized indices written into the procurement contract. Most of the remainder are two, three, and four digit codes, similar to those listed in Section III currently used for troop support items.

In order to make updating past prices a manageable exercise, the number of inflation indices had to be reduced significantly. In the early 1970's, the set of 103 was reduced to ten, nine specific and one general. These indices are listed on p. 8, and follow on pp. 9-17.

The indexing technique used is called indexing by similarity. Most troop support items have some similar counterpart in private industry. Army heating and air conditioning equipment, compressors, and generators, for example are similar in construction to commercial equipment. Often a manufacturer may make both military and commercial equipment at the same location. Due to the thousands of troop support items purchased over the years, the most similar index from the basic set of ten Producer Price Indexes is used as a proxy.

D. Output Generated by the Computer Program:

Data provided by the Bureau of Labor Statistics is in monthly, calendar year format. The computer program does the following:

(1) Rearranges and prints the monthly index in fiscal year format, including FY 76/77, as prescribed by Higher Headquarters.

(2) Computes and prints fiscal year averages for the indices, with calendar year 1982 as the base year.

(3) inverts the index, computes, and prints fiscal year factor which can be used to move a price paid for an item in the past to its approximate price in the current time period.

For example, if the fiscal year factors for FY 82 to FY 88 are the following:

<u>Year</u>	<u>Factor</u>
FY 88	1.00
FY 87	1.06
FY 86	1.16
FY 85	1.25
FY 84	1.37
FY 83	1.51
FY 82	1.67

....to update the price paid for an item in FY 82 so that it reflects what would be paid for the same item in FY 88, multiply by 1.67. The fiscal year factors are a convenience provided to the user, and allow any past price to be brought up to date with one multiplication.

E. Additional Publications Concerning Inflation

Among the documents available from the Inflation Focal Point, Cost Analysis Division, Directorate for Resource Management, AMSTR-CCP are the following:

- (1) DOD Deflator Guidelines (COA)
- (2) "The AMC Inflation Guidance Package."
- (3) "General Guidance for PRIMIR Submissions."
- (4) Handbook of ARMY Cost Analysis Terms
- (5) The Historical Research and Development Inflation Indices for U.S. Army Troop Support Items.
- (6) Inflation Indices, An Introduction To Basic Theory and Their Application, with Sample Problems.
- (7) Inflation and Real Growth-An Executive Primer (COA).
- (8) The Standard Army Inflation Methodology. (SAIM) AR 37-63.
- (9) "The U.S. Cost Forecasting Service Review."

SECTION III

Computer Generated Inflation Indices

### PPI CODES AND ASSOCIATED TROSCOM ITEMS

The following Producer Price Indexes have been associated with the corresponding TROSCOM OPA items for a considerable period of time, and have been used to estimate current prices based on past procurement prices:

<u>Producer Price Index Title and Code</u>	<u>Troop Support Command (TROSCOM) OPA Item</u>
Rubber and Plastic Products PPI Code 07	Collapsible Tanks
Heating Equipment PPI Code 10-6	Air Conditioners Heaters
Fabricated Structural Metal Products PPI Code 10-7	AVL Bridge (Not including Tanks Chassis) Tanks Other Bridges
Machinery and Equipment PPI Code 11	Power Plant (MUST) Firefighting Equipment Forklift Trucks
Construction Machinery and Equipment PPI Code 11-2	Pumps Compressors
Watercraft/Small Ships Index provided to TROSCOM by U.S. Naval Sea Systems	Watercraft
Special Industry Machinery and Equipment PPI Code 11-6	Theodolites Tape Equipment Surveying Instruments
Electrical Machinery and Equipment PPI Code 11-7	Generators Light Sets Utility Elements
Railroad Equipment PPI Code 14-4	Railroad Equipment
Industrial Commodities Average PPI Codes 03 through 15	All other items <u>Not Included in</u> the above

## Troop Support Historical Inflation Indices

BLS Code: 07 RUBBER AND PLASTIC PRODUCTS



FY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	FISCAL YR AVERAGE	FISCAL YR FACTOR
88	104.40	105.10	105.50	106.20	106.90	107.70	108.20	108.80	109.10	110.20	110.90	111.20	107.85	1.000
87	101.50	101.30	101.20	101.50	101.60	101.40	101.80	102.00	102.30	102.90	103.20	103.70	102.03	1.057
86	101.60	101.70	101.90	102.30	102.50	102.20	102.20	102.00	102.00	101.70	102.00	101.80	101.99	1.057
85	102.20	102.00	101.90	102.20	102.10	102.10	102.20	102.10	102.00	101.90	101.40	101.50	101.97	1.058
84	101.20	100.90	101.00	101.40	102.00	102.10	102.40	102.50	102.60	102.60	102.60	102.90	102.02	1.057
83	100.40	100.10	100.30	100.60	100.40	100.20	100.70	100.80	100.70	100.80	101.00	100.80	100.57	1.072
82	98.30	98.60	98.70	98.30	99.20	99.80	99.90	100.30	100.50	100.30	100.50	100.50	99.57	1.083
81	92.30	92.60	92.50	93.20	93.80	94.60	95.60	96.10	96.70	96.20	97.00	97.70	94.86	1.137
80	84.10	84.90	85.30	86.10	87.30	88.10	88.70	89.10	90.00	90.70	91.30	92.00	88.13	1.224
79	73.80	74.30	74.40	74.90	75.90	77.00	78.20	79.00	80.00	81.00	82.40	83.10	77.83	1.388
78	70.50	70.50	70.50	70.50	70.50	71.00	71.60	72.00	72.30	72.50	72.80	73.20	71.49	1.509
77	68.20	68.30	68.20	68.20	68.00	68.20	68.70	68.90	69.40	70.00	70.10	70.20	68.87	1.586

FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	FISCAL YR AVERAGE	FISCAL YR FACTOR
76	62.20	62.20	62.50	62.80	62.90	62.90	63.10	63.90	64.40	64.90	65.10	65.10	64.15	1.681
77	65.80	66.70	67.90											
75	57.80	59.40	60.30	61.10	61.50	61.90	62.00	62.20	62.00	61.90	61.70	61.60	61.12	1.765
74	46.80	46.90	46.70	47.20	47.60	48.30	48.80	49.60	51.30	53.60	55.40	56.20	49.87	2.163
73	45.30	45.40	45.40	45.40	45.50	45.50	45.60	45.60	45.70	45.80	46.20	46.60	45.87	2.362
72	45.30	45.50	45.40	45.30	45.30	45.30	45.40	45.30	45.10	45.10	45.10	45.10	45.27	2.383
71	45.00	45.20	45.20	45.20	45.20	45.20	44.80	45.10	45.10	45.10	45.00	45.00	45.10	2.391
70	43.80	44.00	43.80	44.20	44.50	44.50	44.70	44.80	44.60	44.50	44.40	44.40	44.33	2.433
69	42.90	43.10	43.10	43.20	43.20	43.30	42.80	43.00	43.10	43.30	43.20	43.20	43.12	2.501
68	40.90	41.80	42.00	42.20	42.40	42.40	42.40	42.50	42.50	42.50	42.60	42.70	42.24	2.553
67	40.60	40.60	40.50	40.40	40.60	40.60	40.80	41.00	41.00	41.00	40.90	40.90	40.75	2.647

## Troop Support Historical Inflation Indices

ELS Code: 10-6 HEATING EQUIPMENT



FY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	FISCAL YR AVERAGE	FISCAL YR FACTOR
88	115.70	117.10	114.10	115.90	118.40	118.40	118.50	118.80	118.50	120.50	120.10	120.00	118.00	1.000
87	114.30	114.40	114.50	115.30	115.40	115.70	115.60	115.60	115.10	115.50	115.60	115.50	115.21	1.024
86	110.20	110.30	110.50	111.60	111.70	111.60	112.50	112.30	113.00	113.10	113.50	113.40	111.97	1.054
85	107.90	107.90	108.10	108.00	108.50	108.80	108.70	109.40	109.50	109.60	110.00	110.30	108.88	1.084
84	103.40	103.50	103.60	104.20	104.60	104.80	105.50	106.40	106.50	107.60	107.70	107.80	105.47	1.119
83	100.50	100.70	100.90	101.50	101.50	101.60	102.20	102.30	102.40	103.20	103.30	104.00	102.01	1.157
82	96.50	96.50	96.90	98.40	98.30	99.30	99.50	100.00	100.50	100.70	100.50	100.80	98.99	1.192
81	88.80	89.40	90.20	91.30	91.70	92.50	92.70	93.70	94.20	95.40	96.10	96.30	92.69	1.273
80	81.00	81.40	82.40	84.10	85.40	85.40	86.10	86.00	86.40	86.90	87.70	88.00	85.07	1.387
79	74.60	74.70	75.50	75.90	76.30	77.30	77.50	78.30	78.10	78.40	79.30	80.70	77.22	1.528
78	70.80	70.90	71.40	72.20	72.00	72.20	72.80	73.10	73.30	73.50	74.30	74.20	72.56	1.626
77	67.50	67.80	68.20	68.70	68.80	69.00	68.90	69.10	69.40	69.70	70.00	70.30	68.95	1.711
FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	FISCAL YR AVERAGE	FISCAL YR FACTOR
76	63.30	63.40	63.40	64.10	64.50	65.40	65.50	65.50	65.40	65.70	66.10	66.20	65.34	1.806
75	66.80	67.20	67.60											
75	57.80	59.00	59.60	61.10	62.00	62.60	62.50	62.80	63.00	63.10	63.30	63.50	61.69	1.913
74	51.00	50.90	50.90	50.90	51.00	51.30	51.80	52.10	52.50	53.80	54.80	56.00	52.25	2.258
73	50.20	50.20	50.30	50.20	50.30	50.20	50.10	50.30	50.40	50.80	50.70	50.90	50.38	2.342
72	48.80	49.00	49.00	49.00	49.00	49.00	48.90	49.00	49.30	49.70	49.80	50.00	49.21	2.398
71	47.00	47.00	47.10	47.40	47.60	47.70	47.80	48.10	48.10	48.30	48.60	48.50	47.77	2.470
70	44.40	44.50	44.60	44.90	45.40	45.40	45.40	45.50	45.70	46.10	46.20	46.60	45.39	2.600
69	43.50	43.50	43.50	43.50	43.60	43.80	43.70	43.80	43.90	44.10	44.10	44.30	43.77	2.696
68	42.20	42.10	42.20	42.30	42.50	42.60	42.50	42.70	42.90	43.10	43.30	43.40	42.65	2.767
67	42.20	42.10	42.20	42.40	42.50	42.50	42.10	41.80	41.90	41.90	41.90	42.20	42.14	2.800

Troop Support Historical Inflation Indices

ELS Code: 10-7 FABRICATED STRUCTURAL METAL PRODUCTS



FY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	FISCAL YR AVERAGE	FISCAL YR FACTOR
86	107.00	107.80	103.60	110.20	110.80	111.70	112.90	113.80	114.40	116.10	116.50	116.50	112.19	1.000
87	103.60	104.10	103.80	103.60	103.80	104.00	104.20	104.40	104.90	105.20	105.60	106.10	104.44	1.074
86	103.50	103.30	103.30	103.30	103.50	103.40	103.40	103.30	103.50	103.50	103.70	103.70	103.45	1.085
85	102.90	102.60	102.80	102.90	102.90	103.20	103.20	103.20	103.20	103.20	103.40	103.30	103.07	1.089
84	99.80	100.20	100.40	100.60	100.70	101.20	101.50	101.90	102.10	102.30	102.40	102.40	101.29	1.108
83	100.40	100.20	100.00	99.60	99.40	99.60	99.20	99.10	99.10	99.20	99.40	99.80	99.58	1.127
82	99.30	99.50	99.40	99.60	99.70	99.90	100.10	100.00	100.20	99.70	99.80	100.50	99.81	1.124
81	90.90	91.20	91.60	92.90	93.60	95.00	96.10	96.40	96.80	97.70	98.20	98.40	94.90	1.182
80	84.10	84.20	84.50	84.90	85.20	87.00	88.30	88.50	88.60	89.30	89.60	89.90	87.01	1.289
79	76.00	76.20	76.60	78.20	78.90	79.20	80.00	81.00	81.40	82.20	82.70	83.20	79.63	1.409
78	69.50	69.60	70.00	70.40	71.80	72.60	73.70	73.90	74.10	74.80	75.50	75.70	72.63	1.545
77	64.80	65.00	65.30	65.40	65.70	66.20	66.60	67.00	67.20	68.20	68.90	69.50	66.85	1.883
FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	FISCAL YR AVERAGE	FISCAL YR FACTOR
76	61.80	62.00	62.10	62.40	62.30	62.60	62.50	62.40	62.50	62.50	62.60	63.00	62.73	1.788
77	63.50	64.10	64.60											
75	54.20	57.50	59.00	59.70	59.90	60.00	60.80	62.20	62.30	61.80	61.90	61.90	60.10	1.867
74	41.70	41.90	42.20	42.50	42.90	43.20	44.40	44.90	46.00	47.20	49.80	52.10	44.90	2.499
73	40.10	40.20	40.20	40.40	40.40	40.50	40.80	40.90	41.00	41.20	41.60	41.60	40.74	2.754
72	38.80	39.50	39.40	39.40	39.40	39.40	39.90	40.00	40.10	40.10	40.00	40.10	39.67	2.828
71	37.10	37.20	37.30	37.30	37.30	37.50	37.70	37.90	38.20	38.30	38.40	38.60	37.73	2.873
70	34.90	35.10	35.20	35.30	35.40	35.40	35.80	35.80	36.20	36.30	36.50	36.80	35.71	3.142
69	33.50	33.70	33.80	33.90	33.90	34.00	34.00	34.10	34.10	34.30	34.50	34.80	34.05	3.295
68	32.80	32.90	32.90	33.00	33.00	33.00	33.10	33.10	33.30	33.30	33.20	33.50	33.09	3.390
67	32.50	32.50	32.50	32.60	32.60	32.70	32.60	32.60	32.60	32.70	32.70	32.70	32.61	3.441



Troop Support Historical Inflation Indices

BLS Code: 11 MACHINERY AND EQUIPMENT



FY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	FISCAL YR AVERAGE	FISCAL YR FACTOR
66	110.90	111.00	111.30	111.90	112.20	112.30	112.50	112.90	112.90	113.20	113.60	113.80	112.38	1.000
67	109.20	109.40	109.50	109.80	109.90	110.00	110.00	110.20	110.10	110.40	110.60	110.60	109.97	1.022
68	107.60	107.70	107.80	108.00	108.20	108.30	108.60	108.60	108.70	109.00	109.10	109.10	108.39	1.037
69	105.80	105.90	106.00	106.50	106.80	106.80	106.90	107.10	107.20	107.30	107.50	107.60	106.78	1.052
70	103.20	103.30	103.60	103.90	104.10	104.40	104.80	105.00	105.20	105.50	105.50	105.60	104.51	1.075
71	100.60	101.10	101.30	101.60	102.00	102.10	102.40	102.60	102.70	103.10	103.10	103.30	102.18	1.100
72	96.60	97.00	97.60	98.30	98.80	99.10	99.60	99.80	99.90	100.30	100.40	100.50	98.99	1.135
73	88.50	89.10	89.60	90.90	91.60	92.40	93.10	93.50	94.00	95.00	95.50	96.20	92.45	1.216
74	78.90	79.40	80.10	81.60	82.60	83.40	84.80	85.20	85.80	86.60	87.00	87.60	83.60	1.344
75	71.90	72.70	73.10	73.60	74.10	74.60	75.20	75.80	76.20	77.00	77.50	78.10	74.98	1.499
76	66.60	67.00	67.30	67.90	68.30	68.70	69.10	69.60	70.10	70.50	70.90	71.30	68.94	1.630
77	62.40	62.60	62.90	63.40	63.70	63.90	64.20	64.60	64.80	65.20	65.60	65.90	64.10	1.753
FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	FISCAL YR AVERAGE	FISCAL YR FACTOR
76	58.00	58.20	58.50	58.90	59.30	59.50	60.00	60.20	60.40	60.70	60.90	61.10	60.05	1.871
77	61.40	61.60	62.00											
75	50.30	51.80	52.70	53.80	54.80	55.20	56.20	56.60	57.00	57.30	57.50	57.70	55.08	2.040
74	43.80	43.90	44.00	44.20	44.40	44.70	45.20	45.60	46.30	46.90	48.10	49.20	45.52	2.468
73	42.40	42.40	42.40	42.50	42.50	42.50	42.60	42.80	43.00	43.30	43.60	43.70	42.61	2.625
72	41.60	41.70	41.80	41.80	41.80	41.70	41.80	42.00	42.10	42.20	42.30	42.40	41.88	2.683
71	40.00	40.00	40.20	40.40	40.60	40.80	41.00	41.10	41.20	41.30	41.40	41.40	40.78	2.755
70	38.20	38.20	38.50	38.70	38.90	39.10	39.40	39.40	39.50	39.60	39.70	39.80	39.08	2.875
69	37.10	37.10	37.20	37.30	37.40	37.50	37.60	37.70	37.80	37.90	38.00	38.10	37.50	2.992
68	35.60	35.90	35.90	36.00	36.20	36.30	36.60	36.70	36.70	36.90	37.00	37.00	36.42	3.086
67	34.80	34.80	34.90	35.10	35.40	35.50	35.70	35.70	35.70	35.80	35.80	35.80	35.42	3.173

## Troop Support Historical Inflation Indices

BLS Code: 11-2 CONSTRUCTION MACHINERY AND EQUIPMENT



FY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	FISCAL YR AVERAGE	FISCAL YR FACTOR
88	109.40	109.50	109.70	110.60	111.00	111.00	111.10	111.10	111.20	111.90	112.20	112.30	110.92	1.000
87	106.70	107.50	107.50	107.70	107.90	108.40	108.50	109.20	109.20	109.10	109.20	109.30	108.35	1.024
86	105.60	105.70	105.70	106.20	106.30	106.30	106.40	106.50	106.70	106.70	106.70	106.70	106.29	1.044
85	104.00	104.00	104.00	105.30	105.60	105.40	105.20	105.20	105.30	105.30	105.40	105.50	105.02	1.056
84	102.80	102.90	102.80	103.00	103.50	103.30	104.00	104.00	104.10	104.20	103.80	103.90	103.53	1.071
83	101.10	101.20	101.20	101.30	101.60	101.70	102.00	102.40	102.50	102.60	102.60	102.80	101.92	1.088
82	95.50	95.90	96.50	98.00	98.30	98.60	99.30	99.90	100.00	100.60	100.80	101.10	98.71	1.124
81	87.00	87.30	87.60	88.90	90.10	90.90	92.20	92.60	93.10	94.20	94.50	94.90	91.11	1.217
80	76.70	77.20	78.20	80.30	80.90	81.30	82.60	83.10	83.60	84.80	85.30	86.00	81.67	1.358
79	69.90	70.50	70.90	71.40	72.10	72.30	73.20	73.80	73.90	74.70	75.20	75.30	72.77	1.524
78	63.20	64.20	64.90	65.00	65.40	65.60	66.40	67.00	67.20	67.70	68.20	68.90	66.14	1.677
77	58.90	59.50	59.90	60.20	60.50	60.60	61.10	61.60	61.70	62.20	62.60	62.40	60.93	1.820

FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	FISCAL YR AVERAGE	FISCAL YR FACTOR
76	53.80	53.90	54.50	54.80	55.60	56.00	56.20	56.60	56.70	56.80	57.10	57.50	56.29	1.971
77	58.10	58.30	58.40											
75	44.00	46.90	47.50	48.60	49.10	49.40	51.60	52.40	52.90	53.50	53.50	53.60	50.25	2.207
74	38.20	38.20	38.20	38.50	38.60	39.00	39.40	39.80	40.30	40.70	42.20	43.30	39.70	2.794
73	36.60	36.70	36.70	36.70	36.70	36.70	36.80	37.00	37.40	37.90	38.10	38.20	37.13	2.988
72	35.50	35.50	35.50	35.50	35.50	35.90	36.10	36.30	36.30	36.50	36.50	36.60	35.97	3.083
71	33.40	33.60	33.70	34.40	34.70	35.00	35.10	35.20	35.20	35.30	35.30	35.30	34.68	3.198
70	32.00	32.00	32.30	32.70	32.90	33.10	33.10	33.20	33.20	33.20	33.40	33.40	32.88	3.374
69	30.60	30.60	30.90	31.10	31.40	31.40	31.60	31.70	31.80	31.80	31.80	31.90	31.38	3.534
68	29.00	29.00	29.00	29.40	29.70	29.90	30.20	30.30	30.40	30.50	30.60	30.60	29.88	3.712
67	28.10	28.10	28.20	28.30	28.50	28.60	28.60	28.70	28.80	28.80	28.90	28.90	28.54	3.886



# WATERCRAFT/SMALL SHIP INDEX



U.S. ARMY  
TROOP  
SUPPORT COMMAND

		Labor	Mat'l	Small Ship Index	Fiscal Year Factor
1980	Mar	95.8	268.0	181.9	1.325
	Jun	96.9	272.7	184.8	
	Sep	100.0	275.9	188.0	
	Dec	101.1	284.0	192.6	
1981	Mar	103.3	293.0	198.2	1.217
	Jun	104.8	296.2	200.5	
	Sep	110.0	304.1	207.1	
	Dec	112.4	306.2	209.3	
1982	Mar	114.5	309.5	212.0	1.137
	Jun	114.1	308.4	211.3	
	Sep	118.1	308.2	213.2	
	Dec	120.6	307.7	214.2	
1983	Mar	121.9	312.3	217.1	1.111
	Jun	121.3	312.8	217.1	
	Sep	123.2	316.3	219.8	
	Dec	127.0	318.4	222.7	
1984	Mar	126.9	322.1	224.5	1.074
	Jun	125.7	323.6	224.7	
	Sep	126.8	324.9	225.9	
	Dec	128.6	325.2	226.9	
1985	Mar	131.0	327.0	229.0	1.053
	Jun	130.6	326.2	228.4	
	Sep	130.9	326.6	228.8	
	Dec	131.9	326.2	229.1	
1986	Mar	132.3	322.2	227.3	1.061
	Jun	134.8	323.1	229.0	
	Sep	135.5	324.1	229.8	
	Dec	135.9	324.2	230.1	
1987	Mar	136.5	325.8	231.2	1.043
	Jun	136.6	326.7	231.7	
	Sep	136.4	332.0	234.2	
	Dec	134.9	340.6	237.8	
1988	Mar	134.1	348.1	241.1	1.000
	Jun	133.2	351.5	242.4	
	Sep		357.5	357.5	

NOTES: CY 1980 = 100.0 for Labor Index Base  
CY 1967 = 100.0 for Material Index Base  
Small Ship Index is calculated based on 50%  
Labor and 50% Material.

Source of Index is U.S. Naval Sea Systems,  
Washington, D.C.

## Troop Support Historical Inflation Indices

BLS Code: 11-6 SPECIAL INDUSTRY MACHINERY AND EQUIPMENT



FY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	FISCAL YR AVERAGE	FISCAL YR FACTOR
88	118.10	118.40	118.80	119.30	119.80	120.10	120.70	121.00	121.50	122.10	122.50	122.70	120.42	1.000
87	115.20	115.40	115.80	116.20	116.60	116.70	116.80	117.00	117.00	117.30	117.30	117.50	116.57	1.033
86	111.50	111.80	112.20	112.60	112.90	113.00	113.30	113.60	114.20	114.40	114.80	115.20	113.29	1.063
85	108.10	108.20	108.40	109.40	109.80	110.00	110.20	110.40	110.70	111.00	111.20	111.40	109.90	1.098
84	104.70	104.90	105.20	105.20	105.50	106.00	106.70	107.10	107.20	108.20	108.50	108.00	106.43	1.131
83	100.60	101.20	101.50	102.10	102.30	102.60	102.90	103.30	103.50	103.90	104.30	104.50	102.74	1.17
82	96.80	96.90	97.30	98.60	98.60	98.80	99.30	99.60	100.00	100.60	100.50	100.50	98.96	1.217
81	88.00	88.50	89.50	90.90	92.00	92.60	93.30	94.50	95.00	95.60	95.40	96.20	92.63	1.300
80	78.10	78.40	78.80	80.10	80.90	81.60	83.60	84.00	84.40	85.10	85.20	87.00	82.27	1.464
79	70.80	71.60	71.90	72.70	72.90	73.50	74.90	75.40	75.70	76.80	77.20	77.20	74.22	1.623
78	64.40	64.60	65.10	65.70	65.90	66.60	67.10	67.40	68.30	68.70	69.20	69.80	66.90	1.800
77	59.00	59.00	59.60	60.10	60.40	60.70	61.20	61.70	62.10	62.40	62.70	62.80	60.98	1.975

FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	FISCAL YR AVERAGE	FISCAL YR FACTOR
76	54.00	54.30	54.30	54.90	55.20	55.70	56.30	56.50	56.80	57.50	57.50	57.80	56.41	2.135
77	58.30	58.40	58.70											
75	46.20	48.00	48.80	49.80	50.40	51.00	51.80	52.20	53.10	53.30	53.30	53.60	50.96	2.363
74	40.00	40.50	40.80	40.90	41.00	41.50	41.80	42.50	43.60	44.10	45.20	45.80	42.31	2.846
73	38.10	38.10	38.10	38.20	38.30	38.30	38.40	38.90	39.10	39.50	39.70	40.00	38.73	3.110
72	37.40	37.40	37.50	37.50	37.50	37.50	37.70	37.90	37.80	37.90	38.00	38.10	37.68	3.195
71	35.80	35.80	35.80	36.10	36.10	36.40	36.70	36.80	36.80	36.90	37.00	37.20	36.42	3.307
70	34.00	34.00	34.10	34.20	34.40	34.90	35.10	35.10	35.20	35.20	35.30	35.40	34.74	3.466
69	32.50	32.50	32.60	32.70	32.80	32.90	33.00	33.30	33.40	33.50	33.60	33.70	33.05	3.643
68	30.70	30.80	30.80	31.20	31.20	31.40	31.80	31.80	31.80	32.20	32.30	32.40	31.53	3.819
67	29.60	29.70	29.80	30.00	30.10	30.10	30.40	30.50	30.50	30.50	30.70	30.70	30.22	3.985

Troop Support Historical Inflation Indices

BLS Code: 11-7 ELECTRICAL MACHINERY AND EQUIPMENT



FY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	FISCAL YR AVERAGE	FISCAL YR FACTOR
88	113.10	113.20	113.40	113.70	114.10	113.70	113.80	114.40	114.20	114.40	114.70	114.60	113.94	1.000
87	111.70	111.80	111.90	112.30	112.40	112.30	112.20	112.30	112.20	112.70	112.90	112.70	112.28	1.015
86	109.90	109.80	110.00	110.30	110.60	110.80	111.00	111.00	110.90	111.50	111.50	111.70	110.75	1.029
85	108.30	108.60	108.70	109.30	109.60	109.60	109.30	109.50	109.40	109.60	109.70	109.80	109.28	1.043
84	104.80	104.90	105.30	105.70	106.10	106.50	107.00	107.10	107.60	107.70	107.70	107.90	106.52	1.070
83	100.50	100.90	101.20	101.60	102.40	102.60	102.90	103.00	103.10	104.40	104.40	104.90	102.66	1.110
82	97.30	97.60	98.00	98.80	99.10	99.50	100.00	99.90	100.00	100.00	100.10	100.10	99.20	1.149
81	89.40	89.60	90.20	91.50	92.30	93.30	93.90	93.90	94.70	95.50	96.20	96.80	93.11	1.224
80	79.60	79.80	80.60	82.30	83.90	84.90	85.90	86.30	87.10	88.00	88.50	89.00	84.66	1.346
79	72.30	73.20	73.60	73.90	74.60	75.10	75.60	76.20	76.70	77.70	78.20	78.80	75.49	1.509
78	67.90	68.20	68.20	69.10	69.40	69.90	70.30	70.60	71.10	71.40	71.60	71.90	69.97	1.629
77	64.40	64.60	64.80	65.10	65.40	65.60	65.70	66.00	66.10	66.50	66.70	67.20	65.67	1.735

FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	FISCAL YR AVERAGE	FISCAL YR FACTOR
76	60.80	60.90	61.20	61.50	61.80	61.80	62.30	62.50	62.60	62.70	62.80	63.10	62.30	1.829
77	63.20	63.30	64.00											
75	54.50	55.50	56.30	57.20	58.50	59.00	59.60	59.90	60.10	60.20	60.50	60.60	58.49	1.948
74	48.70	48.70	48.70	48.80	48.90	49.20	49.70	50.00	50.50	51.20	52.10	53.30	49.98	2.280
73	47.80	47.80	47.70	47.70	47.80	47.80	47.90	47.90	48.10	48.20	48.50	48.70	47.99	2.374
72	47.20	47.30	47.20	47.20	47.10	47.10	47.30	47.50	47.60	47.60	47.70	47.80	47.38	2.405
71	46.10	46.20	46.40	46.40	46.60	46.70	46.90	47.10	47.20	47.10	47.10	47.10	46.74	2.438
70	44.40	44.40	44.70	44.80	45.00	45.10	45.30	45.20	45.40	45.50	45.60	45.90	45.11	2.528
69	43.70	43.70	43.90	43.90	44.00	43.90	43.90	44.20	44.20	44.20	44.30	44.40	44.03	2.588
68	43.20	43.10	43.10	43.00	43.10	43.40	43.50	43.80	43.80	43.80	43.70	43.70	43.38	2.828
67	42.00	42.00	42.10	42.20	42.70	43.10	43.20	43.20	43.20	43.20	43.20	43.20	42.78	2.884

## Troop Support Historical Inflation Indices

BLS Code: 14-4 RAILROAD EQUIPMENT



FY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	FISCAL YR AVERAGE	FISCAL YR FACTOR
88	104.60	105.00	105.00	105.30	104.80	105.50	106.20	107.00	108.10	108.00	108.50	108.70	106.39	1.000
87	105.20	105.20	105.30	105.20	104.60	104.70	104.60	104.50	104.40	104.70	104.80	104.80	104.83	1.015
86	105.20	105.10	105.20	105.90	105.50	105.60	105.60	105.30	105.30	106.10	104.90	105.20	105.41	1.009
85	103.60	103.60	103.60	103.90	104.40	104.70	104.80	104.60	105.00	105.10	105.20	105.20	104.47	1.018
84	100.60	100.60	101.20	101.50	101.50	101.60	102.30	102.30	102.30	102.90	103.20	103.20	101.93	1.044
83	101.20	101.20	101.20	101.30	101.20	101.10	101.00	101.10	101.00	101.40	101.30	101.20	101.18	1.051
82	97.80	98.50	98.20	99.80	99.80	99.90	99.10	98.90	98.90	98.90	100.40	100.40	99.22	1.072
81	93.30	93.40	93.50	96.00	96.00	96.40	96.90	95.60	95.70	97.60	97.80	97.80	95.83	1.110
80	82.60	83.20	83.40	85.90	86.40	87.20	89.40	89.60	90.10	91.30	91.80	92.40	87.77	1.212
79	75.10	75.50	75.60	76.90	77.40	77.60	78.40	78.40	79.30	81.00	81.10	81.30	78.13	1.362
78	68.90	68.90	69.20	70.30	70.60	70.60	72.20	72.40	72.40	73.20	73.40	74.10	71.35	1.491
77	64.30	64.30	64.40	65.80	65.80	66.40	66.70	66.70	66.90	67.60	67.90	67.90	66.22	1.607

FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	FISCAL YR AVERAGE	FISCAL YR FACTOR
76	58.40	58.20	58.40	59.10	59.70	60.00	60.40	61.20	61.20	61.70	61.70	62.20	60.75	1.751
77	62.60	63.20	63.20											
75	48.50	50.40	51.40	52.20	53.10	54.20	56.70	56.90	57.20	57.20	57.60	57.50	54.41	1.955
74	38.90	39.00	39.30	39.30	39.40	40.00	40.50	40.70	41.80	42.90	44.40	47.20	41.12	2.588
73	37.60	37.60	37.60	37.60	37.60	37.80	38.00	38.20	38.30	38.50	38.80	38.90	38.04	2.797
72	35.20	35.30	35.30	35.30	35.30	35.30	35.70	35.80	36.70	37.10	37.40	37.40	35.98	2.957
71	33.20	33.20	33.30	33.50	33.50	33.70	34.30	34.30	34.50	34.50	34.70	34.80	33.96	3.133
70	31.90	32.00	32.00	32.20	32.20	32.30	32.70	32.80	33.00	33.10	33.10	33.20	32.54	3.289
69	29.80	29.90	29.90	30.30	30.30	30.30	30.30	30.30	30.80	30.80	31.00	31.20	30.41	3.499
68	28.70	28.70	28.70	29.20	29.30	29.30	29.40	29.40	29.40	29.40	29.40	29.40	29.19	3.645
67	28.10	28.10	28.10	28.10	28.10	28.60	28.70	28.70	28.70	28.70	28.70	28.70	28.44	3.741

Troop Support Historical Inflation Indices

ELS Code: 03THRU15 INDUSTRIAL COMMODITIES



FY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	FISCAL YR AVERAGE	FISCAL YR FACTOR
88	104.00	104.20	104.20	104.40	104.60	104.70	105.60	106.10	106.40	106.70	107.10	106.90	105.41	1.000
87	99.10	99.20	99.20	100.40	100.80	101.10	101.60	101.90	102.40	103.10	103.70	103.50	101.33	1.040
86	103.80	104.00	104.10	103.70	102.10	100.50	99.80	99.80	99.80	98.80	98.60	98.80	101.15	1.042
85	103.60	103.70	103.40	103.40	103.20	103.30	103.70	104.20	104.00	103.90	103.70	103.20	103.61	1.017
84	102.00	101.90	102.00	102.20	102.70	103.10	103.30	103.50	103.70	103.70	103.50	103.20	102.90	1.024
83	100.60	100.90	100.90	100.50	100.50	100.40	100.00	100.40	100.90	101.40	101.60	101.50	100.80	1.046
82	99.00	99.00	99.30	99.80	99.80	99.60	99.20	99.10	99.50	100.20	100.30	100.10	99.57	1.059
81	90.30	90.70	91.80	93.30	94.70	95.90	97.20	97.60	97.70	98.10	98.40	98.40	95.34	1.106
80	79.70	80.30	81.10	83.40	85.10	86.00	86.90	87.10	87.60	88.40	89.10	89.30	85.33	1.235
79	68.70	69.20	69.60	70.50	71.30	72.20	73.30	74.20	74.90	76.10	77.00	78.20	72.93	1.445
78	63.70	63.80	64.10	64.60	65.00	65.40	66.00	66.40	66.80	67.30	67.70	68.00	65.73	1.604
77	59.70	59.90	60.00	60.30	60.90	61.40	61.90	62.20	62.30	62.70	63.10	63.30	61.48	1.715

FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	FISCAL YR AVERAGE	FISCAL YR FACTOR
76	54.80	55.10	55.40	56.00	56.10	56.40	56.80	57.00	57.30	57.70	57.80	58.10	57.01	1.849
77	58.50	58.90	59.20											
75	50.50	51.70	52.10	52.80	53.10	53.20	53.60	53.90	54.10	54.30	54.50	54.60	53.20	1.981
74	40.40	40.60	40.80	41.10	41.70	42.30	43.30	44.20	45.60	46.90	48.20	49.20	43.69	2.413
73	37.80	37.90	38.00	38.00	38.10	38.20	38.40	38.80	39.30	39.80	40.10	40.30	38.72	2.722
72	36.70	36.90	36.90	36.90	36.80	37.00	37.10	37.30	37.40	37.50	37.70	37.80	37.17	2.836
71	35.30	35.30	35.40	35.60	35.60	35.80	35.90	36.00	36.20	36.30	36.40	36.50	35.86	2.940
70	33.80	34.00	34.10	34.30	34.40	34.50	34.70	34.80	34.80	35.00	35.10	35.20	34.56	3.050
69	32.80	32.80	32.90	33.10	33.10	33.20	33.40	33.60	33.70	33.80	33.80	33.80	33.33	3.162
68	31.90	32.00	32.10	32.20	32.30	32.40	32.50	32.70	32.70	32.80	32.80	32.80	32.43	3.250
67	31.70	31.70	31.70	31.70	31.80	31.80	31.90	31.90	31.90	31.90	31.90	31.90	31.82	3.313